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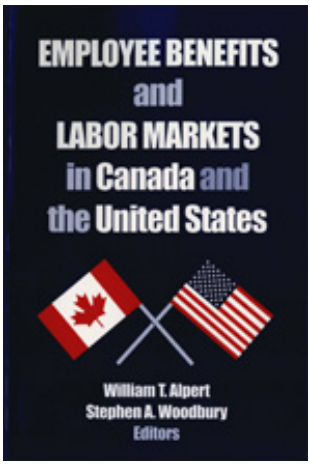
# Employer-Provided versus Publicly Provided Health Insurance:
## Effects on Hours Worked and Compensation

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# 8 Employer-Provided versus Publicly Provided Health Insurance

## Effects on Hours Worked and Compensation

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In this chapter, we investigate whether alternative methods of providing health insurance have consequences for the labor market. In the United States, public policy relies heavily on incentives to enhance the ability and willingness of employers to voluntarily purchase group health insurance for workers and their families. This approach contrasts with that of Canada, where all persons are eligible for a minimum health benefit, which can be supplemented but not supplanted by additional employer-provided benefits. Effectively, the U.S. system bundles relatively high-wage full-time work with the health insurance benefits, while in Canada work and health care coverage remain largely independent. How these two disparate approaches to the provision of health care affect the labor-force decision, hours of work, and the compensation mix is a largely unexplored subject, and it is the focus of this research.

Ideally, we would like to empirically model and directly compare the Canadian and the U.S. systems of health care provision and financing to see how each affects the allocation of time between market and nonmarket activities. However, differences in institutions and social insurance provisions, along with data limitations, make such direct comparisons impossible. Instead, we use U.S. data to draw conclu-

sions about the two systems by analyzing two groups of U.S.workers. In the first group, members are covered by health insurance whether or not they are employed ("virtual Canadians") but, in the second, members must work to obtain equivalent insurance.

Canada has a system characterized by minimum basic coverage available to everyone independent of work effort. Additional coverage can be purchased on a tax-preferred basis, either through the employer or individually. However, this additional coverage cannot compete with the minimum benefits, so the private insurance purchased represents a different set of goods and services. In the United States, a subset of the population operates under a similar system: persons who obtain health insurance coverage through the employment of their spouses. If one spouse has insurance, the other's labor supply is less conditioned on and possible independent of the insurance decision. For our purposes, such individuals will be used to simulate the Canadian experience.

Two aspects of the health insurance market are likely to affect labor-market behavior. First, because of problems of adverse risk selection, individually purchased insurance tends to be extremely expensive or to have fewer benefits relative to employer-purchased insurance. Second, employers usually require that employees work close to full-time hours on the job as a condition for health insurance eligibility. Taken together, when one spouse is not offered health insurance at work, the other must generally work full time to obtain such coverage.

The options of full-time employment with coverage and part-time employment without health benefits may create a particularly difficult choice for an individual who must provide both health insurance and home production for the family. The full-time alternative may be selected even if it results in a sub-optimal allocation of time in the household. Thus, by comparing two groups of married women—those covered by spousal insurance and those who are not—we can simulate labor-supply responses under the U.S. and Canadian systems and try to isolate the importance of this effect.

## EFFECTS OF HEALTH INSURANCE PROVISION ON HOURS WORKED AND COMPENSATION

The effects of employment-based health insurance on hours of work follow from broad studies of the division of compensation between fringe benefits and earnings. In competitive markets, firms will only provide a more generous benefit, such as health insurance or pensions, at the expense of wages that are lower than usual for workers of a given skill level. Evidence on the trade-off can be found in Woodbury (1983) and Woodbury and Huang (1991).

Evidence of the effect of health insurance on labor supply has been inconclusive and has generally tried to relate health status to work effort. Women are disproportionately low-wage workers and, on average, are less likely to be offered employment-based health insurance than men.[1] Moffitt and Wolfe (1990) have examined the role of public- and employer-provided insurance on the work effort of female heads of households. They found that there would be significant entry into the labor force by women currently on Medicaid if employer benefits were expanded. They estimate that a one-third increase in insurance offers by employers would reduce Aid to Families with Dependent Children (AFDC) rolls by 6 percent and raise labor-force participation by 12 percent. While this effect is largely confined to AFDC households with relatively high demand for medical care, the pull into the workforce from employment-related insurance also shows up more generally for female household heads. Other labor-supply effects may be present for another set of female workers, namely women in dual-earner households. In related work, Wolfe and Hill (1992) simulated the effects of mandated benefits for low-wage mothers under different health states and varying hours of work. Health insurance appears to create a stronger work incentive than either a wage increase or a child care subsidy when these women or their dependents are in poor health.

Changes in labor-supply behavior are also implied by studies of job lock or immobility due to preexisting health conditions that would limit coverage or make workers ineligible for health insurance benefits in a new firm (e.g., Madrian 1994). Monheit and Vistness (1995) showed that spouses appear to take efforts to avoid problems of risk selection due to poor health. Among dual earners, if one is in poor

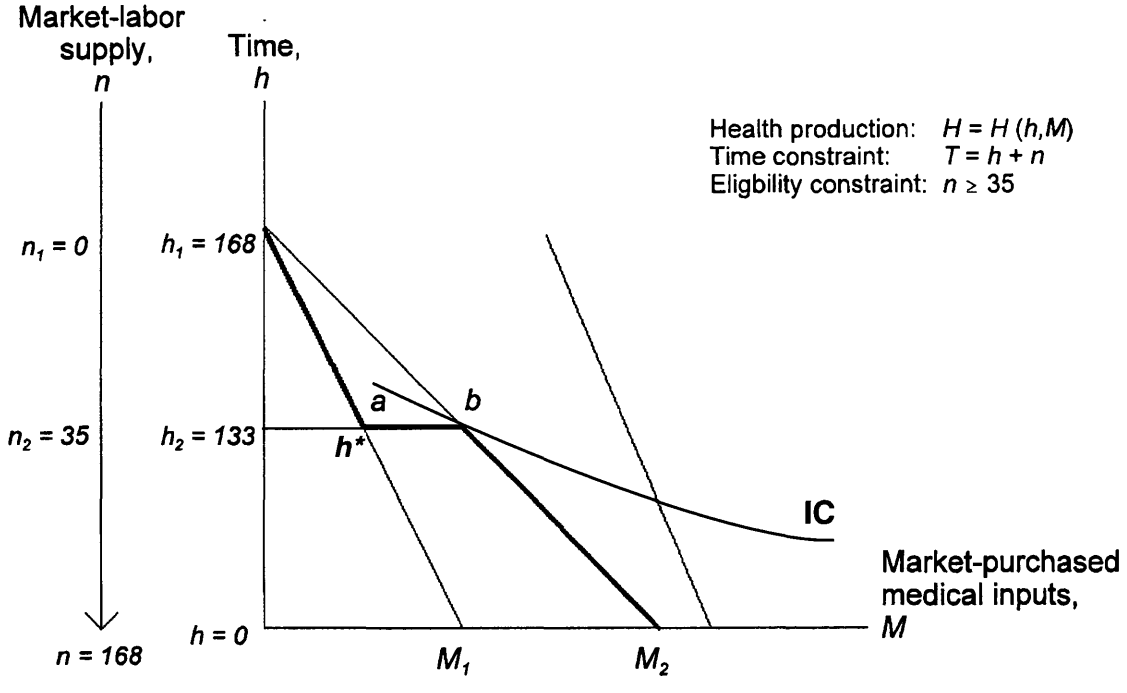
health, the other tends to be the primary holder of employment-based health insurance. On its face, recent legislation also seems based on the assumption that labor-force effort and employment prospects are constrained in the United States by tying insurance to the job. The Kennedy–Kassenbaum Act of 1996 allows former employees to maintain their health insurance indefinitely at the full-employment-based premium, replacing COBRA legislation (Consolidated Omnibus Budget Reconciliation Act of 1985) that limited this option to about two years.

Our analysis extends this research to the general case of health risks, rather than existing health needs, and makes explicit the mechanisms that limit labor hours. Figure 1 shows the general case, based on the household production model of Grossman (1972) in which health is produced using time ($h$) and market-purchased medical inputs ($M$). Further, total time in a week is limited to 168 hours, so hours not devoted to home production (e.g., health production) must be used in market-labor supply ($n$). Given the shadow value of nonmarket time, ($w$, usually the wage rate) and the market price of medical care $P_M$, the budget constraint for health is illustrated by the line $h_1M_1$. If all available time is spent in nonmarket activity ($H_1 = 168$, $n_1 = 0$), no medical care is affordable. As we move down the budget constraint, more hours are worked so more purchasing power is available for medical care but fewer hours are available to provide health care services to the family.

Because it can reduce the problem of adverse selection, group-purchased health insurance is cheaper than that purchased by individuals. The lower price per unit of medical care paid for through employer-provided insurance rotates the budget constraint to $h_1M_2$, allowing greater purchases of medical care for a given amount of work. Thus, the indirect purchase of health insurance as a component of compensation effectively results in an in-kind transfer of medical care to the worker because the benefits of the price reduction accrue only if medical care is consumed.

To obtain insurance, however, the worker generally has to commit to a minimum work schedule. This convention may be imposed on small firms by insurance companies to avoid expensive family coverage that is disguised as employee coverage. Because health insurance benefit premiums are somewhat indivisible, firms may also need a

**Figure 1 Wage/Benefit Trade-off: Health Insurance and Work**



large commitment of hours of work to cover the premium expenditures. In Figure 1, we set the constraint at 35 hours per week. Effectively, the budget constraint becomes kinked at this point and shifts by the amount of the subsidy (*ab*). The new budget constraint with health insurance provided by the firm is the kinked line $h_1abM_2$. Therefore, an individual may be forced to work more hours than he or should would normally desire in order to obtain health insurance. Any indifference curve such as IC touching point $h^*$ with a slope flatter than the budget line represents such a worker.

We compare this case to that of a worker who has access to insurance whether or not he or she works. Such access would have two effects on the budget constraint. It would clearly shift the constraint out because even if one did not work, medical care would be available. However, for our purposes, the more important effect is that the budget constraint loses its kink because there is no longer a need to work a minimum number of hours to qualify for insurance. Most of our attention is focused on the effects of removing that kink. Provision of health insurance through some mandatory scheme financed by taxes, as in Canada, is equivalent to this latter effect. The slope of the budget constraint would depend upon the exact funding mechanism for the mandatory health insurance scheme or the effect on net wages in the employer-provided mechanism and any differences in the relative efficiencies of the two systems.

In both cases, the minimum hours constraint is removed and the worker may choose to reallocate hours of work. Given a high value of nonmarket time, the incentive created by the need to work full time to qualify for insurance is no longer as compelling. We would expect to see hours worked fall for a person who had previously worked too many hours for the purpose of obtaining health insurance coverage.

## DATA AND MODEL SPECIFICATION

To empirically test the proposition that the presence of employer-provided health insurance can affect labor-supply decisions, we evaluate the job characteristics of two samples of wives. In the first sample, husbands hold employment-based health insurance. In the second

sample, husbands are not covered by a job-related health policy. We use a two-stage process to determine if there is self-selection of wives into jobs with health insurance and whether self-selection differs according to health insurance coverage of the spouse.

In the first stage, wives face a trichotomous choice of no work, work without insurance, and work with health insurance coverage. Using a multiple logit model, we estimate probabilities of working with and without health insurance for both groups of wives (husbands with and without coverage). The estimator we use is described in Trost and Lee (1984) and Lee (1983).

We use the first-stage results to create selectivity adjustment terms for our second-stage models of labor compensation. The signs and significance of the selection terms provide information on whether self-selection differs according to the spouse's coverage. In particular, the second stage estimates hourly wages, annual earnings from the current job, and two separate indicators of the share of annualized compensation received in the form of health insurance. The shares consist of the total premium and the employer-purchased premium. We expect that the value of health insurance for wives whose husbands do not have insurance would be greater than for wives whose husbands are covered. We also expect to observe an inverse relationship between the value of health insurance and other compensation (shown as a negative sign on the selection term) if insurance is the result of deliberate selection. This latter is the well-known compensation trade-off required if labor markets are competitive.[2]

The main advantage of this two-step approach is that the estimator is consistent with theory. The hours and compensation mix are treated as jointly determined by the introduction of the trichotomous selection terms that condition the second-stage coefficients. Further, rigidities in the work schedule are implicit in the first-stage estimation of work choices.

The main disadvantage is that the estimator does not allow us to measure the magnitude of the trade-off between total compensation and health insurance, if one exists. The effects of the characteristics that affect the probability of working with insurance are highly nonlinear. Thus, measuring the unit change in compensation associated with a fixed-interval change in the selection term (or its underlying odds) is highly artificial. However, this procedure may still be preferred to

attempts to estimate the trade-off without attention to self-selection of hours and jobs. Any trade-offs observed otherwise may be biased upward because only persons who choose insurance are observed, and their preferences for insurance are likely to be higher than those whose compensation consists of wages only. Additionally, the data we use have limitations for trying to estimate the magnitude of compensation trade-offs because we do not observe pension accrual benefits. Thus, we are forced to omit an important component of compensation against which health benefits could be exchanged.

## Data and Sample Characteristics

Table 1 contains the variable symbols and definitions of the independent variables in the first-stage logit models, the characteristics used to develop the dependent variables in the second stage, and the independent variables of the second-stage analysis. The data on individual health insurance and labor-market characteristics were obtained from Round 4 of the 1987 National Medical Expenditure Survey (NMES) and the supplemental Health Insurance Provider Survey, 1987. The NMES household survey uses a national probability sample of the civilian, noninstitutionalized population. In the provider survey, employers reported information on the kinds of insurance offered and held by household respondents. It also contains data on total premiums and employee and employer share of total premiums. Individual data are augmented by state and county level characteristics of firms and state insurance regulations from Area Resource File, County-City Data Book (Census Bureau), and from state Medicaid and insurance regulation files. Area Resource Files contain a composite of survey results pertaining to the health care market at the county level and are produced biennially by the Bureau of Health Professions. State insurance regulations have been collected annually by Blue Cross and Blue Shield. Medicaid data by state is made available from the Health Care Financing Administration.

We included persons whose job or family status did not change during the round (the quarter year) but, within this group, we focused on married women between the ages of 19 and 62 whose husbands were employed. For empirical purposes, this group was further divided according to whether or not the husband had employment-

**Table 1 Variable Definitions**

| Variable | Variable definition (data source) |
|---|---|
| **Dependent variables** | |
| First stage logit<br>WORK = 1,2,3 | Wife does not work outside home; works with no employer-provided insurance; works with insurance, respectively |
| Second stage | |
| HOURLY WAGE ($) | Annual earnings/annual hours of work |
| EARNINGS ($) | Annual earnings (actual, dependent upon wages, weeks, and hours per week) |
| COMP ($) | Annualized earnings plus annual insurance premium calculated as if wife worked full time and full year |
| PREMIUM/COMP (%) | Total annual health insurance premium as a percent of COMP |
| EMPLOYER CONTRIBUTION ($) | The employer portion of the premium |
| **Independent variables** | |
| NONEARNED INCOME ($) | All other household income reported in 1987 |
| DEP | Number of dependents |
| ADL | Number of limitations of activities of daily living of the wife (health limitations such as walking, bathing, etc.) |
| AGE (years) | Wife's age in years |
| BLACK (0, 1) | Wife's race is Black |
| EDUCATION (years) | Wife's years of education |
| PROF (0, 1) | Wife is in professional occupation |
| TENURE (years) | Years at current job of wife |
| RISK POOL (0, 1) | State where wife resides has a high-risk pool to covered uninsurable persons (Blue Cross Blue Shield data) |
| CONVERSION (0, 1) | State has a mandate requiring conversion to private insurance if job loss occurs (Blue Cross Blue Shield data) |
| TAX RATE (%) | Tax rate applied to insurance premiums by state (Blue Cross Blue Shield) |

(continued)

**Table 1 (continued)**

| Variable | Variable definition (data source) |
|---|---|
| MEDICARE CHARGE ($) | Prevailing health care cost index by geographic area (HCFA data) |
| PER K INCOME ($) | Income per capita in state where wife resides (area resource files) |
| MDS PER CAPITA (ratio) | Physicians per capita in state (area resource files) |
| COUNTY POP | Population of county of wife (city and county data book) |
| MSA (0, 1) | Wife resides in metropolitan statistical area (large urban area) |
| SOUTH (0, 1) | Wife resides in South |
| LAMBDA | Selection term in second state |

based health insurance from his firm or union. Employment was by far the major source of coverage for all of these households. Only 32 husbands had health insurance from other private sources.

The sample characteristics are described in Table 2. Of interest are the lower wages, earnings, and job tenure of uninsured female workers as compared with insured females. Since this table provides only the analytic variables under investigation, data on hours or type of insurance are not provided. However, such data provide additional insight about the way health insurance may influence work decisions. As expected, there were differences in hours of work based on insurance status. Within the group of women who received insurance, just over 80 percent worked more than 35 hours per week, averaging 39 hours per week. By contrast, those who worked without insurance averaged only 32 hours per week. Similarly, when dual health insurance coverage occurred, 45 percent of sample women chose an individual over a family plan. This contrasts with women who were the sole suppliers of health insurance to their families. Only 19 percent of these women chose individual coverage.

**Table 2 Descriptive Statistics of the Samples of Employed Wives: Means (Standard Errors)**

| Variable | Husband insured | | Husband not insured | |
|---|---|---|---|---|
| | Wife – no insurance | Wife insured | Wife – no insurance | Wife insured |
| Sample size | 974 | 816 | 332 | 547 |
| HOURLY WAGE ($) | 7.32 (4.9) | 9.04 (4.60) | 7.8 (4.6) | 8.95 (4.5) |
| EARNINGS ($) | 4,294 (5,067) | 7,208 (12,342) | 4,781 (10,211) | 7,047 (11,888) |
| COMP ($) | | 9,368 (13,010) | | 9,191 (11,955) |
| PREMIUM ($) | | 1,965 (1,573) | | 2,526 (1.862 |
| EMPLOYER CONTRIBUTION ($) | | 1,631 (1,261) | | 1,941 (1,392) |
| NONEARNED INCOME ($) | 25,200 (21,908) | 35,206 (24,267) | 26,672 (23,934) | 27,624 (22,720) |
| DEP | 1.6 (1.40) | 1.31 (1.30) | 1.56 (1.5) | 1.38 (1.2) |
| ADL | 0.01 (0.1) | 0.01 (0.1) | 0.01 (0.2) | 0.01 (0.2) |
| AGE (years) | 36.7 (10.1) | 37.7 (10.1) | 36.2 (10.3) | 36.7 (9.9) |
| BLACK (0, 1) | 0.16 (0.4) | 0.21 (0.4) | 1.56 (1.5) | 0.17 (0.4) |
| EDUCATION (years) | 13.0 (3.0) | 13.2 (2.8) | 12.7 (3.1) | 13.0 (3.0) |
| PROF (0, 1) | 0.12 (0.3) | 0.12 (0.3) | 0.18 (0.4) | 0.15 (0.4) |
| MANUF (0, 1) | 0.10 (0.3) | 0.12 (0.3) | 0.16 (0.4) | 0.6 (0.2) |
| TENURE (years) | 4.3 (6.6) | 7.8 (6.8) | 1.56 (1.5) | 7.3 (6.6) |
| RISK POOL (0, 1) | 0.17 4 | 0.16 (0.41) | 0.19 (0.4) | 0.19 (0.4) |
| CONVERSION (0, 1) | 0.9 (0.3) | 0.9 (0.3) | 0.87(0.3) | 0.87 (0.3) |

(continued)

**Table 2 (continued)**

| | Husband insured | | Husband not insured | |
|---|---|---|---|---|
| | Wife – no insurance | Wife insured | Wife – no insurance | Wife insured |
| TAX RATE (%) | 1.80 (0.8) | 1.85 (0.8) | 1.81 (0.8) | 1.82 (0.8) |
| MEDICARE CHARGE ($) | 27,600 (5,100) | 28,008 (5,345) | 27,289 (5,519) | 27,261 (5,465) |
| PER K INCOME ($) | 14,727 (3,540) | 14,883 (3,776) | 14,168 (3,327) | 14,524 (3,465) |
| MDS PER CAPITA | 0.01 (0.1) | 0.01 (0.1) | 0.01 (0.1) | 0.01 (0.1) |
| COUNTY POP | 776,550 (1,487,000) | 798,533 (1,450,790) | 885,441 (1,924,000 | 868,240 (1,648,652) |
| MSA (0, 1) | 0.25 (0.4) | 0.28 (0.4) | 0.25 (0.4) | 0.27 (0.4) |
| SOUTH (0, 1) | 0.34 (0.5) | 0.36 (0.5) | 0.40 (0.5) | 0 37 (0.5) |

SOURCE: Authors' tabulations of the 1987 National Medical Care Expenditure Survey and Health Insurance Provider Survey.

## RESULTS

### First-Stage Multinomial Logit

Separate logit models were estimated for each of the two subsamples. For brevity, we describe only the results for wives whose husbands worked with insurance.[3] Regression coefficients are reported for those who work with insurance (Table 3)and those who work without insurance (Table 4). These coefficients are calculated relative to those who do not work.[4] In multinomial logit estimation, the signs of coefficients are not necessarily those of the marginal probabilities, so marginal probabilities are calculated if the coefficients are statistically significant.

The independent variables include both person-specific characteristics and area or market characteristics. Some of these variables are excluded from the second-stage regressions so that they also fulfill the theoretical requirement of model identification. Statistical identification is insured because of the nonlinear first-stage technique in which the selection terms are created.

Table 3 shows that nonearned income, education, and per capita income significantly and positively increase the odds of working with insurance (relative to not working) and without insurance (relative to not working). The number of dependents tends to encourage working without insurance. Some area variables such as per capita income affect both working groups while others, the prevailing Medicare charge structure (a proxy for medical care costs), affect one group and not the other.

### Second-Stage Results

We estimate the second state as a function of personal and area characteristics. Personal characteristics include the number of dependents, nonearned income, education, race, age, a measure of health status (the number of ADLs),[5] MSA residency, and job-related traits: industry and occupation (MANUF and PROF), job tenure, and location (South). The education and tenure variables should account for a significant part of skill formation on the job and its associated "internal

**Table 3 Multinomial Logit Results of the Work Decision of Married Women: Husbands with Health Insurance on the Job**

| | Work with insurance | | Work without insurance | |
|---|---|---|---|---|
| Variable | Coefficient (*t*-statistic) | Marg. prob.[a] | Coefficient (*t*-statistic) | Marg. prob. |
| CONSTANT | –4.65 | | –2.56 | |
| | (–8.22) | | (–49.7) | |
| NONEARNED INCOME | 1.8E-04 | 0.000045 | –6.E-06 | –2.5E-05 |
| | (–6.38) | | (–3.41) | |
| DEP | –0.35 | –0.079 | 0.0125 | 0.048572 |
| | (–8.67) | | (7.05) | |
| EDUCATION | 0.21 | 0.030 | 0.125 | 0.002632 |
| | (9.77) | | (7.08) | |
| BLACK | 0.55 | 0.143 | –0.171 | –0.11262 |
| | (3.56) | | (–0.80) | |
| MSA | –0.215 | | –0.172 | |
| | (–1.54) | | (–1.37) | |
| SOUTH | 10.52 | 0.096 | 10.32 | |
| | (1.68) | | (1.25) | |
| COUNTY POP | –9.7E-08 | –2E-08 | –8.2E-09 | 1.0E-08 |
| | (–2.30) | | (–0.219) | |
| PER K INCOME | 1.1E-04 | 1.0E-05 | 1.1E-04 | 1.0E-05 |
| | (4.51) | | (4.92) | |
| RISK POOL | 0.153 | | 0.204 | |
| | (1.06) | | (1.597) | |
| CONVERSION | 0.69 | | –0.23 | |
| | (–0.41) | | (–1.62) | |
| UNEMPLOY | –2.05 | | –0.68 | |
| | (–0.79) | | (–0.29) | |
| TAX RATE | –0.009 | | –0.088 | |
| | (1.42) | | (–1 58) | |
| MEDICARE CHARGE | 4.4E-05 | 9.0E-06 | 1.7E-06 | |
| | (3.22) | | (0.14) | |
| MD PER CAPITA | –30.66 | | –56.69 | |
| | (–0.61) | | (–1.24) | |

[a] Marginal probabilities are calculated for statistically significant coefficients.

Dep var. = 1 $n$ = 925
= 2 $n$ = 1,384
= 3 $n$ = 1,099
–2 log $L$ = –3,110
Chi-square = 30

**Table 4 Multinomial Logit Results of the Work Decision of Married Women: Husbands Have No Health Insurance on the Job**

| | Work with insurance | | Work without insurance | |
|---|---|---|---|---|
| Variable | Coefficient (*t*-statistic) | Marg. prob.[a] | Coefficient (*t*-statistic) | Marg. prob. |
| CONSTANT | –4.429 | | –2.70 | |
| | (–5.32) | | (–3.27) | |
| NONEARNED INCOME | –4.1E-06 | | –1.9E-05 | |
| | (–1.59) | | (–0.69) | |
| DEP | –0.207 | –0.041 | 0.03 | |
| | (–3.90) | | (–0.67) | |
| EDUCATION | 0.240 | 0.039 | 0.11 | 0.002 |
| | (8.35) | | (4.05) | |
| BLACK | –0.091 | | –0.59 | –0.120 |
| | (–0.15) | | (–2.11) | |
| MSA | –0.29 | | –0.61 | –0.109 |
| | (1.20) | | (–2.41) | |
| SOUTH | 10.53 | | 10.58 | |
| | (1.23) | | (1.24) | |
| COUNTY POP | –8.4E-08 | | 1.8E-07 | 3E-07 |
| | (1.35) | | (2.95) | |
| PER K INCOME | 1.7E-04 | 0.00001 | 1.3E-03 | |
| | (4.11) | | (3.2) | |
| RISK POOL | –0.19 | | –0.13 | |
| | (–0.96) | | (0.21) | |
| CONVERSION | –0.31 | | –7.9E-01 | |
| | (–1.26) | | (0.25) | |
| UNEMPLOY | –0.397 | | 0.35 | 0.112 |
| | (–0.12) | | (3.31) | |
| TAX RATE | –0.095 | | –0.18 | –0.030 |
| | (–0.95) | | (–1.83) | |
| MEDICARE CHARGE | –8.1E-06 | | –9.3E-06 | |
| | (0.39) | | (–0.43) | |
| MD PER CAPITA | 73.30 | | 17.42 | |
| | (0.98) | | (0.227) | |

[a] Marginal probabilities are calculated for statistically significant coefficients.

Dep var. = 1 $n$ = 572
= 2 $n$ = 462
= 3 $n$ = 420
–2 log $L$ = –1,288
Chi-square = 594

wage rate." The final variable in the regressions is the selection term that is derived from the first-stage results.

Tables 5 and 6 contain the results for the sample of women whose husbands have health insurance. The results for women whose husbands work without insurance are presented in Tables 7 and 8. Tables 5 and 7 present results for wives without insurance. In these cases, the attributes of the job that are estimated are confined to the hourly wage and the earnings on the present job. For wives with insurance, additional dependent variables include total annualized compensation and two compensation share equations. The first of the two share equation is the total annual health premium as a proportion of annualized compensation and the second is the employer contribution to the premium as a proportion of annualized compensation.

An important reason to elect nonwage compensation may be its nontaxed status. If taxes, which are unmeasured but correlated with income, influence this decision, their effect should appear in the latter measure, which considers only the tax-shielded portion of the insurance premium. Presumably, both the demand for health and the desire for a tax shield increase with income.

For wives married to husbands with insurance, no coefficient on any selection term is statistically significant in either Table 5 or 6. In the case of dual coverage, Table 6, we observe only the standard human capital effects on hourly compensation, earnings, and total compensation. MSA residency, education, tenure, and professional status enhance earnings, while women from the South have lower average hourly wages than other women. There is also a positive relationship between wages and nonearned income, which includes earnings of the husband as well as household nonwage income. Generally, this correlation occurs because of marriage between persons with similar human capital and socioeconomic backgrounds, rather than as a pure income effect.

When we evaluate the shares of annualized compensation attributed to health insurance and to the employer's contribution to insurance in Table 6, we observe an inverse relationship to tenure and a positive relationship to dependents. Earnings increase faster than premiums with tenure, but education raises the premium relative to total compensation. The former result suggests the limitations of trading benefits for wages as total compensation increases. The latter result

**Table 5 Regression Results of Compensation Equations: Wives Without Insurance and Husbands With Insurance, Coefficients (*t*-statistics)[a]**

| Variable | Hourly wage | Earnings |
|---|---|---|
| CONSTANT | 2.49 | –9,390.85 |
| | (2.67) | (–5.02) |
| NONEARNED INCOME | 4.4E-05 | 0.065 |
| | (8.07) | (5.94) |
| DEP | –0.139 | –431.49 |
| | (–1.32) | (–2.04) |
| ADL | 0 37 | –879.22 |
| | (0.33) | (–0.35) |
| AGE | –0.007 | –15.03 |
| | (–0.49) | (–0.49) |
| BLACK | –0.181 | 8.83 |
| | (–0.42) | (0.01) |
| EDUCATION | 0.22 | 672.46 |
| | (4.29) | (6.35) |
| PROF | 1.92 | 1,712.02 |
| | (5.13) | (2.33) |
| MANUF | 0.37 | –80.45 |
| | (0.33) | (–0.09) |
| SOUTH | –0.57 | 800.55 |
| | (–1.95) | (1.37) |
| MSA | 1 42 | 1,693.37 |
| | (4.65) | (2.78) |
| TENURE | 0.132 | 224.24 |
| | (4.89) | (4 40) |
| LAMBDA | –0.34 | 540.48 |
| | (–1.37) | (1.09) |
| $R^2$ | 0.10 | 0.17 |
| *n* | 974 | 974 |

[a] The model contains a dummy variable for missing data on TENURE.

**Table 6 Regression Results of Compensation Equations: Wives With Insurance and Husbands With Insurance, Coefficients (*t*-statistics)[a]**

| Variable | Hourly wage | Earnings | Comp | Employer share | Premium/ comp |
|---|---|---|---|---|---|
| CONSTANT | 212 | −168.62 | −2,954.70 | 0.15 | 0.02 |
| | (2.03) | (−5.79) | (−3.64) | (6.64) | (6.55) |
| NONEARNED INCOME | 2.2E-05 | 0.08 | 0.06 | −5.4E-08 | 3.01E-08 |
| | (3.51) | (4.77) | (2.48) | (−0.44) | (0.21) |
| DEP | −0.14 | −3.02.22 | 142.28 | 4.0E-03 | 0.02 |
| | (−1.41) | (−0.37) | (0.31) | (1.67) | (1.70) |
| ADL | 1.32 | 8,712.42 | −892.58 | −0.02 | −0.01 |
| | (0.95) | (0.37) | (−0.44) | (−0.37) | (−0.42) |
| AGE | 0.01 | 50.92 | 3.98 | 1.0E-03 | 5.5E-05 |
| | (0.47) | (1.09) | (0.37) | (0.33) | (0.13) |
| BLACK | 0.55 | 1,119.67 | 987.53 | 1.0E-03 | 0.01 |
| | (1.51) | (1.07) | (2.16) | (−1.82) | (0.45) |
| EDUCATION | 0.36 | 1,359.11 | 1,285.97 | −0.34 | 4.0E-03 |
| | (6.12) | (8.14) | (6.34) | (−0.24) | (3.07) |
| PROF | 1.08 | −117.18 | 55.16 | −0.002 | −0.02 |
| | (2.41) | (−0.11) | (0.64) | (−1.41) | (−1.71° |
| MANUF | −0.24 | −1,455.08 | −887.97 | −0.01 | (0.01 |
| | (−0.69) | (−1.48) | (−0.74) | (−0.37) | (−0.42) |
| SOUTH | −0.91 | −3.02 | −376.89 | −0.01 | −0.10 |
| | (−3.08) | (−0.37) | (−0.38) | (−0.37) | (−0.42) |
| MSA | 0.91 | 1,966.65 | 2,208.22 | −0.05 | −3.04E-04 |
| | (2.86) | (2.18) | (1.89) | (−0.54) | (−0.40) |
| TENURE | 0.12 | 186.22 | 978.53 | −0.01 | −1 0E-04 |
| | (5.09) | (2.76) | (0.72) | (−2.20) | (−1.83) |
| LAMBDA | −0.18 | −428.36 | −417.08 | 0.0002 | 0.0003 |
| | (−0.29) | (0.29) | (−0.22) | (0.24) | (0.24) |
| $R^2$ | 0.19 | 0.23 | 0.24 | 0.22 | 0.06 |
| $n$ | 816 | 816 | 584 | 565 | 634 |

[a] The model contains a dummy variable for missing data on TENURE.

implies more educated women may demand greater amounts of coverage on the job. We have controlled for age, the wife's disabilities (measured by ADLs), and other income sources. Thus, the link between education and selecting higher levels of coverage appears as a direct one. Such a link is consistent with research on consumption of medical services, suggesting that the higher productivity in health production caused by additional education is offset by greater demand (see, for example, Newhouse 1993).

In Tables 7 and 8, we examine the outcomes for uninsured women married to men without health insurance. Since no feasible substitute exists, household demand for insurance must be met through the wife's job. These women should be more responsive to the offer of insurance than wives whose families obtain insurance through the husband's job. First, we look at uninsured women in Table 7. Again, we do not find the selectivity term to be significant, and standard human capital factors explain hourly wages or earnings (e.g., education, tenure, MSA residency). Earnings on the current job are also positively related to other income.

The most interesting effects of employment/insurance choices are found in Table 8. They pertain to insured women married to men without health insurance. The selection terms are significant in all equations, those explaining elements of compensation and those explaining premium shares. In each case the selection term is signed depending upon the covariance of working with insurance and the continuous dependent variable in the second stage. All elements of compensation fall with greater values of LAMBDA, suggesting a willingness to trade compensation for access to health insurance. The coefficient of LAMBDA, the selection term, is negative in the equation explaining the employer share of total compensation but positive for the ratio of total premiums to compensation. Because the difference between total premiums and the employer share is paid by the employee, it appears that at least some of the net gain accruing to women who select longer hours shows up in the employee's (taxable) portion of the premium. Taken together, these results imply that wives who select jobs that are tied to insurance earn less than the would otherwise earn and receive lower annualized compensation than they would otherwise attain. Moreover, they are even willing to settle for a relatively smaller portion of compensation in the form of nontaxed employer spending on health

**Table 7 Regression Results of Compensation Equations: Wives Without Insurance and Husbands Without Insurance, Coefficients (*t*-statistics)[a]**

| Variable | Hourly wage | Earnings |
|---|---|---|
| CONSTANT | 3.14 | −1,689.98 |
| | (2.21) | (−1.05) |
| NONEARNED INCOME | 1.1E-05 | 0.02 |
| | (1 09) | (1.97) |
| DEP | −0.16 | −166.29 |
| | (−1.17) | (−1.06) |
| ADL | −1.09 | −102.67 |
| | (−0.28) | (−0.25) |
| AGE | −0.02 | −7.82 |
| | (−0 84) | (−0.32) |
| BLACK | −0.39 | 368.62 |
| | (−0.61) | (0.51) |
| EDUCATION | 0.23 | 184.83 |
| | (3.09) | (2.17) |
| PROF | 1.54 | 35.97 |
| | (2.00) | (0.04) |
| MANUF | 0.27 | 1,156.92 |
| | (0.42) | (1.59) |
| SOUTH | 0.43 | −105.16 |
| | (0.92) | (−0.20) |
| MSA | 1.25 | −133.80 |
| | (2.23) | (−0.21) |
| TENURE | 0.39 | 155.83 |
| | (3.21) | (2.04) |
| LAMBDA | −0.46 | −277.37 |
| | (−0.42) | (−0.19) |
| $R^2$ | 0.06 | 0.18 |
| $n$ | 323 | 292 |

[a] The model contains a dummy variable for missing data on TENURE.

**Table 8 Regression Results of Compensation Equation: Wives With Insurance and Husbands Without Insurance, Coefficients (*t*-statistics)[a]**

| Variable | Hourly wage | Earnings | Comp | Employer share | Premium/ comp |
|---|---|---|---|---|---|
| CONSTANT | –0.08 | –11,283 | –9,558.97 | 8.02 | 0.32 |
| | (–0.06) | (–3.09) | (–2.11) | (7.67) | (8.37) |
| NONEARNED INCOME | 1.9E-05 | 0.05 | 0.06 | –9.8E-08 | –2.3E-06 |
| | (2.52) | (2.22) | (2.48) | (–0.97) | (–2.71) |
| DEP | 0.15 | 370.09 | 142.28 | –0.01 | –3.0E-04 |
| | (1.06) | (–0.95) | (0.31) | (–0.75) | (–0.02) |
| ADL | –3.17 | –334.32 | –892.58 | –0.03 | –0.85 |
| | –(0.95) | (–0.17) | (–0.44) | (–1 57) | (–0.70) |
| AGE | –0.04 | 27.47 | –17.86 | –0.01 | 2.0E-05 |
| | (–2.06) | (0.49) | (–0.27) | (–4.32) | (0.09) |
| BLACK | –0.04 | –4,440.41 | –3,479.51 | –0.01 | 0.04 |
| | (–0.08) | (–3.30) | (–3.47) | (–1.03) | (0.93) |
| EDUCATION | –0.08 | –1;511.63 | 1,598 63 | –0.08 | –0.05 |
| | (–0.06) | (–8.18) | (6.72) | (–7.05) | (–6.51) |
| PROF | 0.39 | –286.05 | –1,515.59 | –0.01 | 0.04 |
| | (0.87) | (–0.23) | (–1.04) | (–0.66) | (0.93) |
| MANUF | 0 90 | 2,737.21 | 2,621.28 | 9.0E-04 | –0.01 |
| | (2.08) | (2.71) | (1.69) | (0.08) | (–0.16) |
| SOUTH | –1.11 | 376.63 | 519.69 | 0.01 | –0.10 |
| | (–3.17) | (0.39) | (0.46) | (0.66) | (–0.18) |
| MSA | –1.25 | 3,025.24 | 3,079.95 | 0.01 | –0.02 |
| | (–3.16) | (2.71) | (2.30) | (0.72) | (–0.46) |
| TENURE | 0 16 | 255.56 | 230.18 | 1.9E-05 | –0.10 |
| | (5.57) | (3.14) | (2.42) | (0.03) | (–0.18) |
| LAMBDA | –2.97 | –17,013 | –16,487 | –0.07 | 0.39 |
| | (–2.42) | (–5.01) | (–4.03) | (–1.99) | (2.12) |
| $R^2$ | 0.30 | 0.28 | 0.29 | 0.11 | 0.06 |
| $n$ | 547 | 497 | 395 | 384 | 373 |

[a] The model contains a dummy variable for missing data on TENURE.

insurance premiums. When given the choice, women whose husbands are not covered on the job will prefer jobs tied to insurance offers, despite certain costs. It appears that at least one motivation for selecting such jobs is access to health insurance.

## CONCLUSIONS: IT'S AS EASY TO FALL IN LOVE WITH A MAN WITH HEALTH INSURANCE . . .

Our findings confirm the important work of Moffitt and Wolfe and the suggestions of others that labor supply is affected by insurance offerings. Women in the United States appear to have two options to obtain covers, the "correct" marriage or full-time work. Thus, the Canadian system appears to be less intrusive than the U.S. system of health care delivery, at least in terms of labor supply and, therefore, the household's optimal division of time.

While health benefits in the United States and Canada have both suffered from rising costs, the U.S. system also leaves prominent gaps in coverage (see, for example, Levitt, Olin, and Letsch 1992; Woodbury and Bettinger 1993). We have investigated only part of this problem—the necessity to constrain hours of work to some minimum before a worker becomes eligible for health insurance. Indirect evidence about the sufficiency of full-time work as a means of obtaining insurance may be discerned by comparing wives who hold insurance with wives who do not. Part-time versus full-time work also predicts the returns to education in the form of wages. Wages range from about 22 to 23 cents per hour per year of schooling for wives working without insurance (Tables 5 and 7). In contrast, for other wives, a year of schooling generates 36 to 50 cents extra an hour (Tables 6 and 8). Arguing that obtaining insurance through full-time work is a viable option for all women may be equivalent to arguing that all women can attain high-wage jobs.

What we have been able to demonstrate is that health insurance affects the labor-supply decision and that a trade-off appears to occur between insurance and wage compensation—at least for one U.S. population subgroup, wives who are the sole source of health insurance for

their families. Presumably, they represent the conditions under which the majority of U.S. workers operate.

Since their complement, wives whose husbands have health insurance, depict the Canadian case, we conclude that at least some Canadians are likely to choose to work fewer hours than their U.S. counterparts, other things equal. The equality of other things depends particularly upon whether, in which direction, and by how much the health insurance financing scheme in Canada affects labor compensation. Crude evidence suggests that U.S. workers do spend more time than Canadians in labor supply. If a part of this extra effort results from constraints of the health delivery system, social welfare is also reduced.

## Notes

The views in this chapter do not necessarily reflect those of the U.S. General Accounting Office. We are indebted to William Alpert and Paul Menchik, whose careful comments and advice contributed substantially to the development of this chapter.

1. In fact, more women than men are covered by health insurance in the United States. The disproportionate coverage by women occurs through public coverage. Adult enrollers in Medicaid and Medicare are disproportionately female, and women are more often than men covered as dependents on group policies.
2. Until recently, little empirical evidence has supported its existence. High-wage workers also tend to have generous benefits, and it is difficult to disentangle all aspects of employment in secondary databases (see Ehrenberg and Smith 1983).
3. In the example we present, we do not deal with issues of joint labor supply by family members. Instead, we act as if male labor supply decision is predetermined and see how this insurance coverage affects the wife's decision to work.
4. We also tested the effect of the husband's health insurance coverage on the wife's labor supply using an alternative multinomial choice model. All wives were pooled and the choices they faced involved full-time work, part-time work, and no work. A dichotomous variable for the insurance status of the husband was included as an explanatory variable. Coverage for the husband was found to be a significant inverse predictor of female labor supply. Because we can only observe insurance premiums for those who obtain insurance, we could not use such a model to determine if trade-offs between wages and health insurance exist, as we can in the alternative approach presented here.
5. ADLs stands for Activities of Daily Living. These include maintenance activities such as bathing, dressing, and eating. The number of ADLs is the number of activities a person is unable to perform and is therefore a measure of disability.

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